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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/747,933

12/29/2003

Kwang Ryong Oh

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7073

8791

7590

01/26/2005

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EXAMINER

CHIEM, DINH D

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/747,933

Applicant(s)

OH ET AL.

Examiner

Erin D Chiem

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/29/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1-5 and 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al. Sun et al. teaches a polymeric waveguide prism-based electro-optic beam deflector comprising a passive optical waveguide having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals; and a light deflector formed by patterning the upper cladding layer in a predetermined shape at an upper portion of the passive optical waveguide, wherein a refractive index of the core under the predetermined shape is modified to deflect a light beam by applying a current or an electrical field to the light deflector (page 1218, paragraph 2 and Fig. 1). Furthermore, the predetermined shape, plurality of repeating triangles, is formed to make an angle of an emergent light beam different from that of an incident beam (Fig. 2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2883

4. Claim 6, 7, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in view of Kusakabe (US 6,511,858 B1).

5. Sun et al. disclose a polymeric waveguide prism-based electro-optic beam deflector comprising a passive optical waveguide having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals; and a light deflector formed by patterning the upper cladding layer in a predetermined shape at an upper portion of the passive optical waveguide, wherein a refractive index of the core under the predetermined shape is modified to deflect a light beam by applying a current or an electrical field to the light deflector (page 1218, paragraph 2 and Fig. 1). Furthermore, the predetermined shape, plurality of repeating triangles, is formed to make an angle of an emergent light beam different from that of an incident beam (Fig. 2). But Sun et al. do not disclose electro-optic beam deflector is composed of an InP material and the core area and the active are composed of InGaAsP material, and that the deflector patterns are formed by embossing or engraving method.

6. Kusakabe disclose a semiconductor light-receiving device in which is composed of InP material (col. 1, line 11) and the core is formed of InGaAsP (col. 1, line 13) for the ability of integrating various device to the light-receiving device, both electronic and optical devices.

7. Furthermore, Kusakabe also disclose employing etching as a method of forming or removing elements from the light receiving device and one of the elements that is formed on the device are electrodes (col. 1, line 42-50). Although, Kusakabe do not explicitly disclose etching electrode onto the device, but it is well-known in the art that

Art Unit: 2883

etching is employed for placing electrode onto the device's surface. The examiner would like to note that etching is also known as embossing or engraving.

8. Since Sun et al. and Kusakabe are both from the same field of endeavor, the purpose disclosed by Kusakabe would have been recognized in the pertinent art of Sun et al.

9. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ InP as the substrate material and InGaAsP as the core material since these are typical materials employ to manufacture planar waveguide. And furthermore, etching has been known to be used as a method of placing gratings onto semi-conductor waveguides, or as a method of layering the multiple layers of planar waveguide. Therefore, it is obvious to incorporate the methods taught by Kusakabe with the concept of the electro-optic beam deflector taught by Sun et al. as an integrated electro-optic beam deflector for the ability of integrating both electronic and optical devices.

10. Claim 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in view of Paek (US 5,946,128). Sun et al. disclose a polymeric waveguide prism-based electro-optic beam deflector comprising a passive optical waveguide having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals; and a light deflector formed by patterning the upper cladding layer in a predetermined shape at an upper portion of the passive optical waveguide, wherein a refractive index of the core under the predetermined shape is modified to deflect a light beam by applying a current or an electrical field to the light deflector (page 1218, paragraph 2 and Fig. 1). Furthermore, the predetermined shape, plurality of repeating

Art Unit: 2883

triangles, is formed to make an angle of an emergent light beam different from that of an incident beam (Fig. 2). But Sun et al. do not disclose a collimator lens for collimating a light beam emergent from the light source; and a diffraction grating for changing a diffraction angle depending on a wavelength of the light beam through the collimator lens, and further comprises a reflecting mirror for reflecting a specific wavelength diffracted by the diffraction grating.

11. Paek disclose a grating assisted acousto-optic tunable filter comprising a collimator lens (Fig. 3, 29) for collecting emergent beams and direct the collected beam to the beam deflector 23. The beam propagation is the deflected to the diffraction gratings 21 and the selective wavelengths are then propagate to the mirror 31 for reflecting a specific wavelength diffracted by the diffraction gratings. Paek's grating assisted acousto-optic tunable filter is use to increase the number of available wavelength channels for output hence further provides significantly increase the output bandwidth.

12. Since Sun et al. and Paek are both from the same field of endeavor, the purpose disclosed by Paek would have been recognized in the pertinent art of Sun et al.

13. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ a different beam deflector in place of the acousto-optic beam deflector 23 into the system for the purpose of increasing the number of available wavelength channels for output hence further provides significantly increase the output bandwidth.

Art Unit: 2883

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem
Examiner
Art Unit 2883

edc



Frank G. Font
Supervisory Patent Examiner
Technology Center 2800